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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/691,135	10/21/2003	Jiun Hann Sir	42P17197	4962

7590

08/03/2005

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EXAMINER

PHAN, THIEM D

ART UNIT

PAPER NUMBER

3729

DATE MAILED: 08/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/691,135

Applicant(s)

SIR ET AL.

Examiner

Tim Phan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 June 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 22-32 is/are pending in the application.
- 4a) Of the above claim(s) 26-32 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 22-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>6/7/05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The amendment filed on 6/07/05 has been fully considered and made of record.

Election/Restrictions

2. Newly submitted claims 26-32 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons:

Restriction to one of the following inventions is required under 35 U. S. C. 121:

- I. Claims 1-12 and 22-25, drawn to a method of making an interconnecting via, classified in class 29, subclass 852;
- II. Claims 13-21, drawn to a device, classified in class 428, subclass 209.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product as claimed can be made by using chemical etching, then injecting a conductive paste into

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the via holes. The process as claimed can be used to make a different product such as a sculpture.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

3. During a telephone conversation by Examiner Cathy Lam with Michael Bernadicou on 8/10/04 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-12 and 22-25.

However the Restriction should have restricted the methods further as shown hereinbelow. Hence a second Restriction is necessary.

4. Restriction to one of the following inventions is required under 35 U.S.C. 121:

I-A. Claims 1-12, drawn to a method of making an interlocking interconnection, classified in class 29, subclass 852;

I-B. Claims 22-25, drawn to a method of making a conductive via, classified in class 29, subclass 846.

The inventions are distinct, each from the other because of the following reasons:

Inventions I-B and I-A are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the

subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because the method of making a via as recited in Group I-B does not require an anchor volume with a width that is wider than the hole through the bottom conductor, as required by Group I-A. The subcombination, Invention I-A, has separate utility such as utilizing the removed portion of the dielectric layer for anchor-interlocking.

5. Since Applicants' Amendment (filed 6/07/05) has added new claims (Claims 26-32) which then necessitate new ground(s) of Restriction presented in this Office action.

Further Restriction to one of the following inventions is required under 35 U.S.C. 121 as this group I-B contains claims directed to the following patentably distinct species of the claimed invention:

Species I-B-1: An embodiment of a method of making an interconnecting via, Claims 23-25;

Species I-B-2: Another embodiment of a method of making an interconnecting via, Claims 26, 27 & 32;

Species I-B-3: A further embodiment of a method of making an interconnecting via, Claims 28-30;

Species I-B-4: An embodiment of a method of making a specific width range of via, Claim 31.

Currently, it appears that Claim 22 is a generic claim to the Group I-B.

Since applicants have received an action on the merits for the originally presented invention (Claims 22-25), this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 1-21 and 26-32 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Applicants are required to cancel these nonelected claims (1-21 and 26-32) or take other appropriate action.

6. The rejection of claims 22-25, which were rejected in the Office Action mailed 03/10/05 under 35 USC 102; these claims are rejected under 35 USC 102 herein for substantially the same reasons as provided in the previous Office Action which is incorporated herein and made a part hereof.

Response to Arguments

7. Applicants' arguments filed 6/07/05 have been fully considered but they are not persuasive for the following reasons:

Applicants urge that “Bindra fails to disclose removing a section of the bottom conductor to result in a via hole as is recited in claim 22” (Remarks, page 7, lines 4 & 5). Indeed, Bindra et al does teach the electrically joining of the circuitized power core (Col. 5, line 14; col. 9, lines 10-15) to the vias. Applicants’ reliance on the drawings to justify the non-connection between vias and internal layers such as power core or layer (Fig. 1A, 3) or signal layer (Fig. 1A, 5) is traversed since a multilayer printed circuit board having a via as interconnecting structure that is well known as always being electrically connected to some internal, conductive layers and isolated from others, and the drawings provided by Bindra et al are simplified in order to clarify the invention, wherein the electrically connection or isolation between the internal layers and vias is not considered an invention’s critical step, which is well known in the art.

The same reason as above is applied to the step of depositing a conductive material in the via (Remarks, page 7, 2nd paragraph; claim 22, lines 9 & 10) to connect the top and bottom conductors. Moreover, Bindra et al disclose as prior art reference, Lazzarini et al (US 4,864,722), which teaches a multilayer circuit board with a via that is connected to some internal, conductive layer and disconnected from others (Fig. 5, 11).

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicants' disclosure.

THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicants are reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

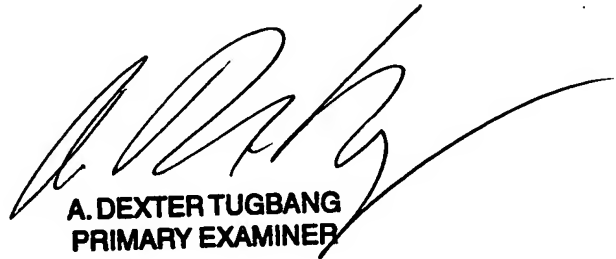
9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tim Phan whose telephone number is 571-272-4568. The examiner can normally be reached on M - F, 9AM - 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on 571-272-4690. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tim Phan
Examiner
Art Unit 3729



A. DEXTER TUGBANG
PRIMARY EXAMINER

tp
August 1, 2005